

Political Internet Memes and Political Learning: an Experimental Approach

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Abstract

This study considers the effects that Political Internet Memes (PIMs) have on the levels of political knowledge in users. This study first explores the literature from memes, political knowledge, and political comedy. To investigate causality, the study employs a 2x2 survey embedded experiment on an online sample ($N=545$) from Prolific. Results suggest that people do indeed learn political information from Political Internet Memes, but notably less than if they would by reading a news article. PIMs are found not to have much impact in feelings towards the victim of the humor. The learning pattern remains constant even when controlling for socio-demographic factors known to influence political learning. However, PIMs learning might be influenced by separate socio-demographic factors. Further, PIMs exposure appears to impact participant's confidence in their political knowledge. The study has implications for the study of PIMs, social media, and political knowledge.

Introduction

As society becomes increasingly technological and public conversation shifts from the real to the virtual, people find new ways of associating and communicating between themselves. In a world where social media plays a key role in fostering political public conversation (Milner 2016), increasing scholarly attention has turned to analyse the digital and cultural phenomenon of Internet Memes (IM).

This research investigates whether Political Internet Memes (PIMs) influence the Political Knowledge (PK) of the users exposed to them. In other words, can people learn knowledge about politics through looking at Political

Internet Memes? By posing this question, this research contributes to a new niche of scholarly literature that applies memetic theories and analyses to understand the real-world impacts of memes. Only a handful of studies (Guadagno et al. 2013; Klein 2019; Huntington 2020) explore the direct influence of memes on users. To our knowledge, no study has focused on political knowledge acquisition with an experimental design.

The novel approach applied within this research draws on the multidisciplinary research between PIMs and political knowledge. This study employs an experimental survey design that measures the extent to which PIMs might increase the PK of users. The following research contributes to the growing body of literature that is shifting from studying memes as an end in themselves, to studying IMs as vectors of information and their influence on users. Focusing on the impacts of PIMs on users with an experiment allows to establish causality between exposure to PIMs and PK acquisition. This will ultimately shine a light onto the effects of PIMs on users, which current memetic literature neglects and assumes some kind of effect.

This paper will first explore the pertinent theoretical frameworks in PIMs, comedy and knowledge to formulate hypotheses. The methods section introduces the survey-embedded experiment, stimuli development and measures used. Results analyses the data from the survey through confirmatory factor analysis, ANOVAs and its non-parametric correspondent. The last part summarizes the findings, discusses them in relationship to the literature, implications, and limitations of the research. The following sections provide the theoretical framework for the research. Firstly, the context in which IMs are present: Web 2.0, Memetics and Virality. Next, the paper focuses on conceptualising Internet

Memes and Political Internet Memes as *lingua franca* (Milner 2016). Finally, the last sections explore the linkages between political humour, political knowledge and PIMs in order to set out the hypotheses that will be investigated in the experiment.

Web 2.0, Memetics and Virality

Before addressing the main topic of this research, it is important to spend a moment exploring the context in which memes are circulated. Blank and Reisdorf (2012) define the concept of Web 2.0 using a user-oriented approach, defining Web 2.0 as ‘using internet to provide platforms through which network effects can emerge’ (Blank and Reisdorf 2012: 539). They identify two main principles of Web 2.0, the first one being ‘network effects’ meaning that tools within the platform are as valuable as the number of people that use that tool. They use emails as an example: the more people that use email the more valuable email is because multiple people can connect with each other. The second component is ‘platform’, virtual places where users have freedom to share and create content. Platform is interconnected with network effect, where the more users participate in ‘engagement, communication and information gathering’ the more valuable that platform is (Blank and Reisdorf 2012: 539).

In order to understand Internet Memes and their characteristics it is important to address the origin of the term *meme*. Understanding where this term has originated is significant as it has become the basis of conceptualising Internet Memes as known today. The term meme was first coined and used by Richard Dawkins (1976) in his book “the Selfish Gene”. According to Dawkins a meme is a ‘unit of cultural transmission’ (Dawkins 1976:192) that replicates and propagates between brains, spreading information. Dawkins draws similarities between genes and memes throughout his book, drawing from biology to explain them. Examples of memes are songs, catchphrases and ideas that pass from person to person. They replicate, spread, are subject to changes and finally ‘stick’ to a brain. Memes are entities that live inside people’s minds (Dawkins 1976). The study of memes – memetics – as conceptualised by Dawkins has a long-standing history (Blackmore 2000; see Edmonds 2005). Memes undergo the same evolutionary process that genes do, meaning that natural selection principles play an important part in memetic spread (Edmonds 1996). Multiple memes exist contemporarily, compete for the attention of the individual in an environment where people have a

limited availability of attention (Shifman 2014:177; Weng et al 2012).

With the advent of Web 2.0, the birth of Internet Memes has changed the way memes are conceptualised, straying away from the Dawkinsian notion of *mimema*.

The main difference between IMs and virality is that viral content is ‘a singular cultural unit’ (Shifman 2014:56) whereas memes are ‘a collection of texts’. Memes are not a singular lone-standing element but part of a collective. IMs might originate from a viral photo/video and could ‘go viral’, but that doesn’t mean that all that goes viral is an IM. Creating a distinction between viral items and memes is important in discriminating between what is a meme and what is not. It is important highlight this concept as sometimes users mislabel viral and humorous content as being a meme while it may not be. This kind of error is sometimes also present in Knowyourmeme.com, a database on memes that allows researchers to understand each IM better. Knowyourmeme.com is a useful tool for researching memes, but caution is required as this website might produce false positives. Next, the paper focuses on the literature around IMs and PIMs.

Internet Memes(IM) and Political Internet Memes(PIM)

The present literature has focused on conceptualising Internet Memes as digital artefacts (such as Shifman 2014), as units of a language within themselves (Milner 2016), as means of political participation (Ross and Rivers 2017; Howley 2016; Milner 2013; Kahne et al 2015) and as cultural and social phenomena (Gal et al 2016; Milner 2013, Nissenbaum and Shifman 2017). Other authors have focused more on different aspects of Political Internet Memes (Anderson and Sheeler 2014; Burroughs 2013; Milner 2013; Piata 2016; Ross and Rivers 2017) although they don’t appear to clearly define what constitutes a PIM.

This scholarship has focused on analysing memes themselves, but so far only a handful of studies have tested what kind of influence Internet Memes can have on people that are exposed to them (Guadagno et al. 2013; Klein 2019; Huntington 2020). There is an assumption that memes have some kind of effect on users but there is a lack of experimental design to prove links of causality between exposure to memes and effects on users.

Although Internet Memes are a heterogeneous group of items, there seems to be scholarly consensus around the definitions produced by Shifman. This paper uses the definition proposed in Memes in Digital Culture (Shifman 2014: 41):

‘(a) a group of digital items sharing common characteristics of content, form, and/or stance which (b) were created with awareness of each other and (c) were circulated, imitated, and/or transformed via the Internet by many users’.

This broad definition proposed by Shifman succeeds in embracing the very heterogeneous group that Internet Memes are. Additionally, Shifman’s definitions are widely used in scholarly articles, demonstrating their value. The paper now proceeds to explore a rather unique view of memes produced by Milner (2016) where memes are conceptualised as their own language.

Memes as language

Milner (2016) in his book ‘The World Made Meme’ argues that memes themselves foster public conversation and public participation. This kind of conversation and participation is polyvocal and at the same time collectivist – as in the case of ‘We Are The 99%’ (Milner 2013). Milner believes in the centrality of this collective dialogue as a key element of the contemporary media ecology, with IMs enriching public conversation. Milner argues that memes can be empowering – allowing a voice or point of view to be heard better than before. However, IMs can also be marginalizing – because of anonymity, it is easier to antagonize people and marginalize their memes. IMs can also create ingroup-outgroup dynamics (Burroughs 2013).

Milner also asserts that memes appear to be a *lingua franca*, meaning that conversation between users can happen by using memes. He also argues that memes are able to function as ‘means of sharing information’ (Milner 2016:6). Following Milner’s (2016) line of reasoning, this paper questions the extent to which the sharing information function of IMs is effective at communicating political information. This is an even more compelling question considering the notion of memes being a language of information transmission between users.

Political Internet Memes

There has been increasing academic interest in memes and their intersection with politics. According to Heiskanen (2017), PIMs have the ability to engage voters who wouldn’t normally participate in the electoral process, although this claim is yet to be backed up with quantitative analysis. Memes can work as a form of political communication and political participation (Shifman 2014; Chagas et al 2019; Milner 2013). Shifman (2014 pp.117-150) identifies 3 PIMs

functions: persuasion and political advocacy, grassroots action and expression of public discussion.

Academic literature is currently lacking a definition of what Political Internet Memes are. There has been an attempt to do this by Shifman (2014a:120):

‘political memes are about making a point – participating in a normative debate about how the world should look and the best way to get there’.

Building on the previous research done on this topic, this study proposes a different definition of political Internet Memes. This definition is one of the first attempts to provide a clear and testable definition of Political Internet Memes, but this study does not claim to provide the ultimate definition of it:

Political Internet Memes are Internet Memes which have their main focus/message as something political or concerning politics in general.

Political in this definition means concerning political actors, political events, political institutions etc. The functions identified by Shifman (2014a pp.117-150) can also be applied to this definition, using their function to characterize types of PIMs that can be encountered in the Web 2.0.

Political Knowledge

Political Knowledge is a topic that has long been analysed by researchers of public opinion, political psychology, political communication and related disciplines.

Political Knowledge (PK) is defined by Delli Carpini & Keeter (1996:10) as ‘the range of factual information about politics that is stored in long-term memory’. The authors put emphasis on the long-term memory, and factual information; which distinguishes this notion of PK from other key concepts in mass opinion such as political attitudes, beliefs, values and opinions (Delli Carpini & Keeter 1996). By politics, they mean ‘the authoritative allocation of goods, services and values’ (Delli Carpini & Keeter 1996:12). They distinguish 3 dimensions of political knowledge:

‘(1) **the rules of the game** (the institutions and processes of elections and governance); (2) **the substance of politics** (the major domestic and international issues of the day, current social and economic conditions, key policy initiatives and so forth); (3) **people and parties** (the promises, performances, and attributes of candidates, public officials, and the political parties)’ [added emphasis] (Delli Carpini & Keeter 1996:14).

Delli Carpini & Keeter (1996) treat PK as being a product of human interaction and personal and systemic factors; PK constitutes the ‘currency of citizenship’ in a democracy, a resource of citizens. In order for individuals to acquire

political knowledge there are three conditions to be satisfied: *ability* – cognitive capabilities to understand information; *motivation* – reasons that lead someone to look for political information; *opportunity* – chance and availability of the information. Numerous studies (Delli Carpini & Keeter 1993; Sturgis et al 2007; Mondak 2000) have explored how to measure the concept of political knowledge through surveys. Most of this literature revolves around measuring PK with survey data that has already been collected and measuring a general level of PK – mainly about domestic affairs. In the research for literature around this topic, the researcher could not find any high-profile article investigating how to design PK questions for ad-hoc surveys aiming at measuring knowledge on a specific political topic.

The sole exceptions were few directions given by Delli Carpini & Keeter, 1993; and marginally Mondak 2000) regarding the design of question answers, how to deal with don't knows and whether to use close or open-ended questions. Political knowledge is a key component of citizenship. When citizens are politically knowledgeable, they make better decisions in the democratic opportunities are presented to them (Delli Carpini & Keeter 1996), for instance, turning out to cast an informed vote. Political knowledge acquisition – political learning – has been observed to be influenced by some individual-level characteristics. For example, African Americans, low-income, young people, women, less educated are generally less knowledgeable about politics than their white, higher income, older, male, higher educated counterparts (Delli Carpini & Keeter 1996; Strabac and Aalberg 2011).

Political Humour

Internet Memes have a humorous component as highlighted by Milner (2013b) and further explored in the case of Greek elections in Piata (2016). Although this study recognizes that humour is a part of PIM, this research will not dwell too much on the humorous part of memes as does not represent the research focus. Political humour is a long-standing component of politics, from ancient Romans and Greeks to recent televised political humour in the US with the David Letterman Show and Saturday Night Live (Young 2017:837). Young (2017:873) defines political humour as

‘an umbrella term that encompasses any humorous text dealing with political issues, people, events, processes, or institutions’.

Within this umbrella term there are political satire, parody, irony and comedy. Each of these forms of political humour has been analysed and presents a consistent body of

literature. The way that political humour conveys information leads to the message encountering less resistance or counterargument towards it (Becker 2014), possibly leading to attitude change (Young 2012). Some scholars refute this notion as the humour can be perceived as just being humour and nothing else (Baek and Wojcieszak 2009; Kim and Vishak 2008). Political humour can also have a persuasive capacity in painting a (negative) picture of the victim of the joke, leading to more critical sentiments in viewers (Rill and Cardiel 2013). Programmes such as Saturday Night Live have been observed to increase political knowledge among viewers (Feldman and Young 2008). Political humour can also be used as a barometer of the public's opinion on a certain issue and/or its perceived salience (Gray et al 2009).

People exposed to political humour have been found to be more likely to participate in and discuss politics in general (Cao and Brewer 2008). Political humour can also reduce trust in government and evoke negative emotions in viewers (Rill and Cardiel 2013). Political humour is also mediated by age, education, previous exposure to political comedy (Cao 2008; Hollander 2005), interest in politics, political knowledge and political ideology (Young 2017). Gregorowicz (2013:44) highlights how political comedy can increase knowledge due to the ease with which it is recalled in the mind, especially if individuals are already knowledgeable about the topic.

Considering the humorous component of memes this paper argues that PIMs constitute political humour. As such, they could carry political information and increase political knowledge, as the other forms of political humour do. Additionally, taking Milner's *lingua franca* conceptualisation of memes, where IMs are a way of communicating information, then PIMs could be a vehicle of information concerning politics (that is, political information).

H1: Users exposed to a PIM should exhibit higher levels of PK

In order to assess the extent to which users exposed to PIMs acquire PK it is appropriate to include a more traditional communication of political information, a political news article. The article and PIM need to be as equal as possible in terms of political information content.

H2: Users exposed to an article should exhibit the same levels PK than the users exposed to a PIM

Identifying the two stimuli being PIM and an article creates a 2x2 factorial experiment with four conditions. In terms of

the humorous part of PIMs, the abovementioned literature points towards evoking negative emotions in viewers, especially towards the victim(s) of such humour.

H3: Users exposed to a PIM will exhibit negative sentiments towards the subject(s) of humour

The above explored literature also suggests the same individual-level characteristics that influence PK levels might also influence feeling unfavourable towards the victim of the joke. The main individual differences being education, age, political ideology and gender.

H4: Individual differences might influence the relationships in H1, H2 and H3

Institutions, governance and electoral processes (PK1) might be too complex to be conveyed in a PIM, this might be due to their complexity and can vary from country to country. The other two dimension of PK (Delli Carpini & Keeter 1996) are more suitable for PIMs, as they relate to faster, day to day, personalised part of political knowledge. PIMs are also used as a reaction to politics and political events, communicate current political events, make fun of a specific politician. Intrinsically, PIMs, are more likely to communicate political information regarding the last two dimensions of PK, as identified by Delli Carpini & Keeter (1996).

Method

Sample characteristics

Participants were recruited through Prolific.co. The participant was shortly briefed on the content of the survey before starting. A remuneration of £0.75 was paid upon completion of the survey which lasted on average around 5 minutes. The sample requested was 552. This study had to reject 88 participants because of failed stimulus check or looked at the stimuli for less than 7 seconds. The sample was pre-screened through a Prolific function, showing the survey only to people who live in the UK, as the stimuli regarded a UK politician. The survey ran on the Prolific platform on the 27th of March 2019. Once rejected participants were identified, additional participants were included the 17th April 2019. The funds necessary for the survey were provided by the University of Nottingham's School of Politics and International Relations Student Fund. After refining the sample by eliminating outliers ($n=7$, *Cook's distance* $>.015$) the number of participants was narrowed down to 545. Table 2 presents the

distribution of participants in the experimental conditions. The sample has a mean age of 34 ($SD=12.07$), is predominantly university educated, female and of UK nationality.

Ethics

The participants had to provide their consent at the start of the. Participants were made aware of the possibility and procedure of withdrawal. The research was approved by the University of Nottingham School of Politics and International Relations Ethics committee. Data was collected anonymously, sensitive data (IP address) was deleted immediately after download. The participants were debriefed on how the stimuli was developed for the sole purpose of the study.

Measurement

The Political Knowledge Scale ($M=3.23$, $SD=1.70$) was constructed by an additive measure made of the 6 items on political knowledge, see Table 1. Due to the scarcity of literature on PK question design in an experimental setting, the researcher had to design their own. To create the PK scale, the researcher analysed what political information was present in the stimuli, reflecting its content. The questions present in table 1 were produced based on the stimuli information and the two dimensions of PK which relate the most to PIMs. Correct answers were scored as 1. If the participant answered incorrectly, they would get 0. In item 1, participants choosing the open-ended option and provided a partial answer were scored as 0.5. In item 5 the answer 'Low' was coded as 1 while 'No trust' was coded at 0.5. The answers to each of the questions were presented in a random order to the respondent to avoid random answers. All the variables had equal weighting in the scale producing a simple additive index. The PK scale was then tested for reliability and confirmatory factor analysis, explored further in the results section.

<i>N</i>	<i>Question wording</i>	<i>PK Dimension</i>
1	Who is Esther McVey?	People and parties
2	How correct was McVey's tweet about the EU?	Substance of politics
3	In particular, what did McVey tweet about the EU?	Substance of politics
4	What is Esther McVey's stance on Brexit?	People and parties
5	According to the image/paragraph you saw, what is the level of trust in politicians in the UK?	Substance of politics
6	Which one of these is Esther McVey? Tap on the person you think is Esther McVey	People and parties

Table 1: Political knowledge scale questionnaire and political knowledge dimensions measured by each item

Feeling thermometers measured on a feeling thermometer (0-10) between unfavorable/cold and favorable/warm. Participants had to indicate how they viewed the EU ($M=5.88$, $SD=3.17$), politicians in general ($M=2.23$, $SD=1.92$), and Esther McVey ($M=2.45$, $SD=2.17$).

Information seeking behaviors ($M= 4.63$, $SD=3.07$) was measured by asking participants how likely they were to look for more information on the subject on a scale (1-10).

Confidence ($M=4.63$, $SD=2.28$), was measured by asking how confident participants were in the answers they selected in the PK items (1-9).

Political ideology ($M=2.75$, $SD=1.43$) was measured through a self-assessed scale measured from 0 to 7 where 0 is left-wing and 7 is right-wing. Grouped as very left wing, left-wing, right wing, and very right wing

Socio-demographics. Participants had to indicate their Age ($M=34.07$, $SD=12.1$) Gender ($M=1.68$, $SD=0.47$) UK or EU nationality ($M=1.11$, $SD =0.32$) and Education ($M=4.64$, $SD=1.04$). Education was measured from 'Less than GSCE' to 'Doctorate degree' with an option for 'Other'.

Experimental design

This study employs a 2x2 factorial between-subject experiment embedded in a survey, with a PIM and a news article as stimuli. The experimental design stems from H1 and H2.

By using such method, the study is able to establish causality between exposure to PIM and increase in PK.

Utilizing a piece of written news allows the inclusion more traditional stimuli, as well as introducing a comparison between PK learned from PIM or article. Participants were randomly assigned to a condition at the start of the survey, Table 2 shows conditions and *N* of participants. Exposure to stimuli was checked by a Qualtrics timing function.

		Political Internet Memes exposure	
		<i>Yes</i>	<i>No</i>
Exposure to news piece	<i>Yes</i>	Meme and Article MAAM(142) AM (66) MA (76)	Article A (134)
	<i>No</i>	Meme M (139)	No stimuli Control (130)

Table 2: Experimental conditions with N of participants.

Stimuli development

The characteristics for the selection of the news piece were that it needed to concern the two areas of political knowledge identified in the theoretical framework, a current political event (substance of politics) that revolved around a politician (people and parties). The chosen stimulus is the controversy surrounding the MP Esther McVey. The MP tweeted a debunked 4-year old article about how all EU members must adopt the Euro as their currency by 2020. The abovementioned tweet can be seen in Figure 1.



Figure 1: Tweet that sparked the controversy.

The MP tweeting false information about the EU and its policies caught the attention of some users and a few newspapers. Some even pointed out McVey's hypocrisy of deliberately tweeting a debunked article after having complained about the lack of trust in politicians just days before.

The article (Figure 2) chosen for the stimuli was a combination of two articles, from The Week (The Week 2019) and Mirror Online (Smith 2019). The origin and partisanship of the article were not disclosed to the participant as their partisan bias might influence the extent to which they retain information (Young 2012).

Please read the following paragraph from a newspaper article.

Former Tory minister Esther McVey has been branded a “serial liar” after tweeting untrue claims about the EU.
 The Tory Brexiteer approvingly quoted a speculative opinion piece in The Daily Telegraph in 2014 in which Brexit-supporting economist Andrew Lilico suggested all EU member countries would have to join the euro by 2020.
 The article was debunked shortly after it was published, with critics pointing out that under the Maastricht Treaty of 1992, the UK and Denmark are relieved of the requirement to join the euro.
 Others pointed to a tweet posted by McVey hours before she made the EU claim that decried the lack of trust in British politicians.

Figure 2: Article used in experiment.

Next, the researcher searched a PIM regarding the controversy. Ideally, it would be a pre-existing meme found on social media, but after extensive research, no meme was found. The researcher then proceeded to craft PIMs by using various image macros. Figure 3 is the chosen stimulus. When designing and choosing, the researcher paid attention in making stimuli equal in political information contained.



Figure 3: Political Internet Meme used in experiment.

Results

This section illustrates the results of the data analysis performed. First, the political knowledge scale was tested for reliability and a confirmatory factor analysis was performed. Secondly, ANOVAs were performed for PK scale (H1 and H2) and feeling thermometers (H3). In the ANOVAs where Levene’s test of equality was violated, the researcher turned to non-parametric Welch’s ANOVA (H3). To explore whether socio-demographics play a role in the relationships tested, ANCOVAs are employed (H4).

Political knowledge

The political knowledge scale ($M=3.23$ $SD=1.70$) was tested for reliability ($\alpha=.645$). As alpha comes close to the acceptability threshold ($\alpha \geq .7$) a Confirmatory Factor Analysis was performed on the scale. As part of CFA, multiple models were run. The final model (Figure 4) was prompted by modification indices present in the AMOS output. The modification indices suggested multiple covary between errors, which were applied by following the PK dimensions previously outlined in this paper.

Post-Hoc error correlation in SEM is discouraged if done only based on the modification indices, however it is acceptable if there is a theoretical underpinning of error covariation. Table 1 provides the PK dimension measured by each question and thus provides a theoretical justification error covariation in the model. Items 1, 4 and 6 measure the people and parties dimension; while items 2, 3 and 5 measure the substance of politics dimension.

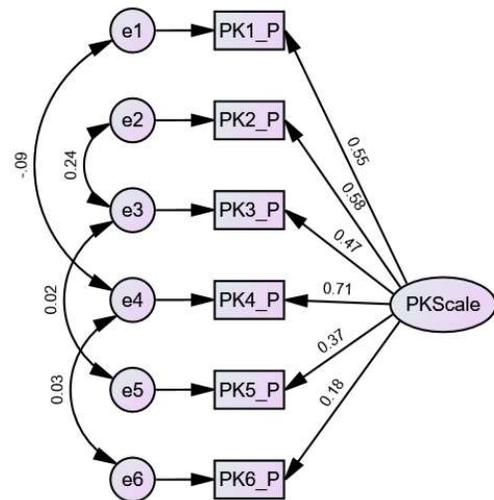


Figure 4: PKScale final CFA with standardized weights.

The final model fits the data $\chi^2=8.07$ ($df=5$, $p=.152$), the other fit indices are also within bounds of a good fitting model ($RMR=.005$; $CFI=.992$; $RMSEA=.034$).

ANOVA tests were conducted to explore the impact of experimental groups on the levels of political knowledge (PKScale). Levene’s test of homogeneity was not violated ($p>.05$). The ANOVA found a statistically significant difference $F(3, 541)= 135.29$, $p<.001$ between groups. The effect size (adjusted $R^2=.425$) indicates that 42.5% of the variance in the political knowledge scale is explained by the experimental groups. Post-hoc comparisons were performed with Tukey HSD, which indicated significant differences between all the groups. Participants exposed to the meme ($M=2.58$, $SD=1.17$) presented higher levels (+0.86, $p<.001$) of PK than the control group ($M=1.7$, $SD=1.42$) but lower levels (-1.46, $p<.001$) when compared to article ($M=4.04$, $SD=1.32$) or article and meme groups (-1.92, $p<.001$) ($M=4.49$, $SD=1.24$). Additionally, there is a significant difference between article and MAAM (+.46, $p=.018$).

Figure 5 presents the different levels of PKScale in the experimental groups. To check for order effects in the meme and article group a 5-group ANOVA was performed $F(4, 540)=101.55$ $p<.001$, Tukey HSD post hoc revealed no difference between MA and AM (+.17 $p>.05$). In this model, only AM is significantly different to A(-.546 $p<.05$).

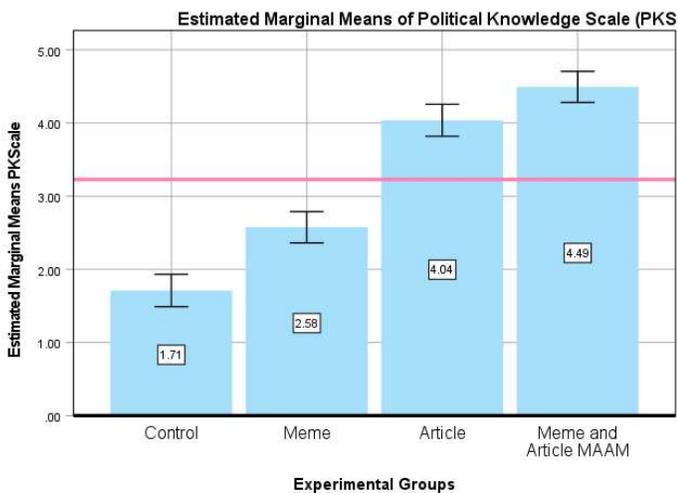


Figure 5: Political Knowledge levels across experimental groups. (Error bars 95% CI; Pink line grand observed mean)

This data seems to support H1 but only in the case of participants seeing only a meme or a meme and an article. H2 does not find support in this data, as participants exposed to the

article show higher levels of PK than those exposed to the PIM. However, participants in the meme and article exhibit higher levels of political knowledge compared to being solely exposed to the article.

ANOVA was performed on how different experimental groups scored in the feelings towards the EU, there was no significant difference between the groups $F(3,519)=.540$ $p>.05$. The ANOVA performed on feelings towards politicians in general found no significant difference between the groups $F(3,508)=.705$ $p>.05$. Due to violation of Levene’s test of homogeneity, Welch’s ANOVA was performed on feelings towards Esther McVey which showed significant difference between the groups $F(3, 268.79)=11.65$, $p<.001$.

Games-Howell Post-Hoc reveals a significant difference between article ($M=1.97$, $SD=1.89$) and meme ($M=2.84$ $SD=2.25$) of -0.870 ($p<.005$). Control ($M=3.28$, $SD=2.33$) and meme do not differ significantly (+0.438, $p>.05$), so do article and MAAM ($M=1.91$ $SD=1.97$) (+.06, $p>.05$). Meme is significantly different to MAAM (+0.928, $p<.005$). Figure 6 summarises the Welch ANOVA. Order effects in MAAM group were also tested with a 5-group ANOVA $F(4, 219.4)=8.7$, $p<.001$; which revealed no significant difference between AM and MA (+0.02, $p>.05$).

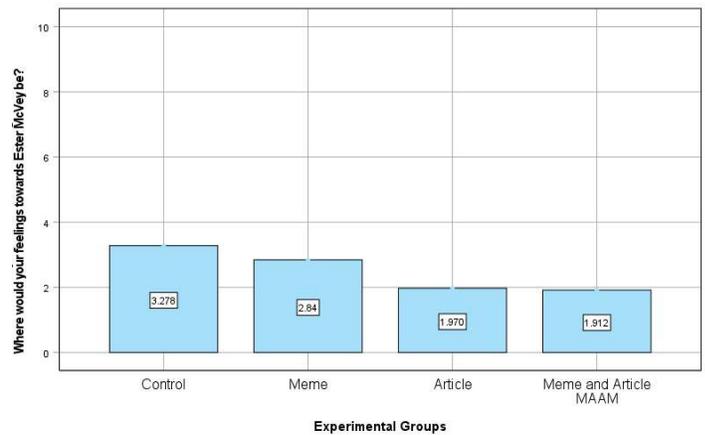


Figure 6: Feelings towards Esther McVey across experimental groups

In summary, experimental manipulation seems to impact only the feelings towards the main subject of the joke, McVey but not feelings towards the EU or politicians in general. The difference in feelings seems to be impacted more by being exposed to the article rather than the meme. In this data, H3 is not supported as the PIM does not seem to influence feelings towards the victim of the joke.

ANCOVA was performed with PKScale as dependent, experimental groups as fixed factors and covariates being education, gender, ideology, age, nationality, confidence in answers $F(3, 454)=75.49, p<.001, Adjusted R^2=.562$. Levene's test of equality was not violated ($p>.05$). The covariates that significantly impact PKScale are: education ($Partial \eta^2=0.027, p<.001$), ideology ($P\eta^2= 0.015 p<.01$) and confidence in answers selected ($P\eta^2=0.176, p<.001$).

To test whether the same individual differences impact feelings towards McVey, an ANCOVA was performed with HC3 in SPSS, which calculates parameter estimates with robust standard errors, for when Levene's test of equality is violated. The ANCOVA resulted statistically significant, $F(3, 416)=6.23, p<.001, Adjusted R^2=.212$. Individual differences that seem to significantly influence feelings are: ideology ($P\eta^2=0.134, p<.001$) confidence ($P\eta^2=0.017, p<.01$) and marginally nationality ($P\eta^2=.009, p=.052$). As a result, H4 is supported by the data but only in the case of education, ideology and confidence on political knowledge; and ideology, confidence and marginally nationality on feelings towards Esther McVey.

To check whether exposure to stimuli also impacted other variables, additional ANOVAs were performed on information-seeking behaviors $F(2, 412)=2.21 p=.111$; confidence $F\text{-Welch}(3, 290.59)=36.7, p<.001, \eta^2=.187$; enjoyment of stimuli $F(2, 407)=3.97, p<.05, Adjusted R^2=.014$. The Welch-ANOVA for confidence with Games-Howell Post-Hoc shows significant differences between all groups ($p<.001$) but not between article and meme ($+0.42 p>.05$). Figure 7 presents the experimental groups and the respective confidence scores.

To conclude, the data presented supports some of the hypotheses. H1 is supported in the case of Meme vs Control, and Article vs Meme and Article. H2 is not supported by the data. H3 is not supported, but interestingly, exposure to a Meme does not result in colder feelings but exposure to the article does. H4 is supported by the data but only in the case of education, ideology and confidence on political knowledge. For feelings towards Esther McVey; ideology, confidence and marginally nationality seem to have an influence on this relationship. The next section will discuss these results and their implications.

Discussion

The survey embedded experiment presented in this paper supports the notion that Political Internet Memes confer political information, thus increasing the level of political knowledge of people exposed to them. The experiment suggests that exposure to news pieces increases political knowledge to a higher extent than memes. Order effects of exposure between meme and article seems to have no effect on political knowledge. Furthermore, the political learning pattern still exists even when controlling for age, gender, education, ideology, confidence, and nationality. Education, ideology and confidence seem to impact political knowledge acquisition in this sample. This pattern has been highlighted in the political knowledge and humor literature already and seems to be pertinent to PIMs but only in the case of education, ideology and confidence in answering questions. More negative feelings towards the victim of the joke, Esther McVey, seem to be prompted by reading the article rather than being exposed to a PIM. Feelings seem to be also impacted by ideology, confidence and marginally nationality. Finding such a pattern which is statistically significant in the sample ($N=545$) leads the author to believe that such learning pattern could exist in the real world.

In the sample, age or gender do not have an impact on political knowledge, which could be attributed to the predominance of young and female participants. Although a similar pattern of individual difference impacting political knowledge and political comedy exists in the literature, results seem to suggest that this relationship might not be as strong as previously thought. This could be due to a non-representative sample and smaller sample sizes than the ones used in the literature. This does not invalidate the results, rather presents a puzzle that further research and modelling could solve, determining whether the variables that influence political learning identified by the literature are

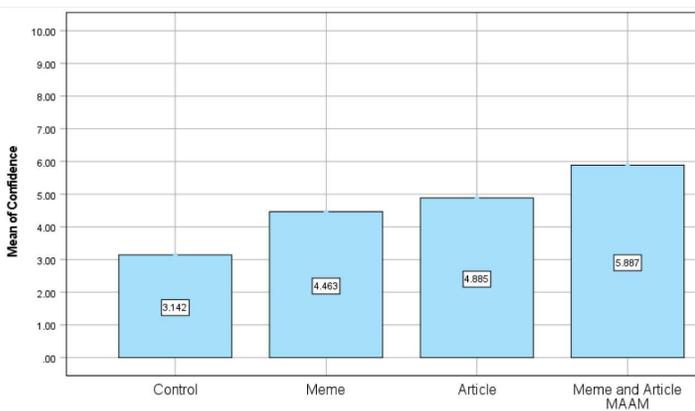


Figure 7: Confidence in answering PK scale across experimental groups.

still influential when analyzing political learning and feelings in PIMs.

The results presented indicate that people learn about politics from exposure to Political Internet Memes, confirming that memes should not be dismissed by social science research. Further scholarly attention should be devoted to researching what their effects are on the electorate. This research potentially opens a new perspective in understanding how political information is exchanged and acquired on social media through less traditional ways of political knowledge acquisition.

This research also calls for meme-makers to think about the power and influence that they can exert on the electorate.

The value of a meme is not simply humorous, it represents a vehicle for information. As such, users should start to realize the power that memes can have on them. Political Internet Memes also have implications on political campaigning and understanding the public conversation that happens through memes. PIMs could be employed as a public opinion barometer, as vehicles of political information, PIMs could influence citizens' views politics and candidates. Academic research is slowly catching up on the power that memes can have on elections (see Heiskanen 2017; Chagas et al. 2019; Moody-Ramirez and Church 2019). Other research could also look at how the act of meme-making impacts political knowledge.

Limitations

Using an online sample with mostly young undergraduate, female participants limits generalizability to wider society. However, the author believes that if such effect was found in the sample, political learning from memes potentially exists in wider society. Additionally, young people form a significant part of the social media population, thus, young persons have a higher chance of being exposed to memes. Political knowledge presents an emphasis on long-term memory, which is difficult to measure in such a short experiment. As such, the survey might be measuring the political information communicated by the stimuli, rather than acquired long-term knowledge. Even though this paper does not measure long-term memory retention of the information, the results still show that PIMs do indeed communicate some form of political information to the users, potentially prompting political learning. Testing long-term memory requires a different experimental design, to include a temporal element, assessing information acquisition and retention.

Further research could repeat the same experiment on a representative sample, potentially in the United States to test

whether the effect of memes is just a British phenomenon or not. Using only a meme that has been generated for the purpose of the study could have altered the results. However, the meme was created the same way any user would, so it is safe to assume that the effect could be the same. As such, the meme produced for this study can be considered representative of any other pre-existing meme. Further research could employ experimental design with more than one Political Internet Meme, by changing, for example, the media format of the meme, or using conflicting information between the meme and the article. Obtaining an analogous result in a repeat experiment would confirm that the results described here are not just bound to the specific meme but exist across memes.

Conclusion

This paper has examined the literature from memes and its lack of tools for a systematic study. The connections between Political Internet Memes, political knowledge, and political comedy were explored, contributing to a better understanding of PIMs. This study has shown how different works of literature have pointed towards such theorization of the influence of PIMs, and the potential gaps in this literature. Using a 2x2 experiment establishes a causality linkage that Political Internet Memes do indeed increase the political knowledge/information of the users exposed to them, but to a lesser extent than "hard" news.

This pattern also seems to exist even if controlling for various covariates previously known to influence political learning and humor. Covariates that seem to influence political learning and feelings in this sample are ideology, education, confidence, and nationality.

In the last part, the paper discusses how the incorporation of new studies into the analysis of this phenomena could benefit academic research. Although this research has its limitations, it is one of the first in its kind and the author believes that the limitations do not affect the validity of the results obtained. Additionally, most of the limitations stem from the lack of scholarly research and analysis in this field. This study shifts the focus to dwelling on the effects that memes have on people rather than analyzing memes as themselves.

This research calls for more attention on memes from scholars to analyze the phenomena; from users to be careful about how memes are shaping their knowledge of the political world, and from meme-makers to consider that the memes they produce could shape users' perceptions.

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